PLANNED SYNERGISM

FINAL REPORT

Task Order Contract No. NASr-63(08)

MRI Project No. 2947-D

For

Technology Utilization Division
Office of Technology Utilization and
Policy Planning
Code ATU
National Aeronautics and Space Administration
Washington, D. C. 20546

MRI

MIDWEST RESEARCH INSTITUTE

425 VOLKER BOULEVARD/KANSAS CITY, MISSOURI 64110/AC 816 LO 1-0202

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by

Paul C. Constant, Jr.

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PREFACE

This report describes the work performed during the period 1 February 1966 to 31 March 1967 under the program entitled, "Planned Synergism," Task Order Contract No. NASr-63(08). The work was performed by Midwest Research Institute for the National Aeronautics and Space Administration.

The program was under the project leadership of Mr. Eldon Sneegas and management of the Economic Development Division of Midwest Research Institute from its beginning to 1 January 1967. From then to the end of the contract period, the program was under the technical leadership of Mr. Paul C. Constant, Jr., Manager, Technology Utilization, and the management of the Engineering Division of Midwest Research Institute.

Approved for:

MIDWEST RESEARCH INSTITUTE

Harold L. Stout

Harold L. Stout, Director
Engineering Division

26 April 1967

I. INTRODUCTION

This report, which represents a final report on our work with the concept of Planned Synergism, covers the period between 1 February 1966 to 31 March 1967. As a program, it grew out of the recognition that R&D planning, increasingly vital in management decisions, could benefit from new concepts in technology transfer and utilization, such as those which are being refined at Midwest Research Institute through ASTRA efforts.

More specifically, the question considered is whether a selected group of people, sharing a common interest in the same technology but possessing different orientations in terms of product or market, can profit from sessions during which they study and work togethrr on problems of technology transfer. To answer this question, we must determine the following: Have improved concepts and new techniques been fully understood by their own companies? What recently developed ideas in the technology they all understand can benefit their respective organizations? And, can MRI's professional staff, who are conducting the experiment, devise a strategy which all can learn in a minimum time, for the achieving of maximum results in these directions?

II. PROGRAM OBJECTIVES

Our concern has been:

1. To use the concept of planned synergism as a technique for transferring technological information to those who can use it best; and

2. To disseminate NASA-generated technological information to midwestern industry.

In brief, we have been interested in defining a methodology and in achieving an end-result through successfully exploited methodology.

III. TECHNICAL PROGRAM

A. Synergism - Subject Chosen: Systems Engineering

NASA's work in systems engineering has been of significant dimension, and a satisfactory transformation from NASA's information centers to nonspace,

nonmilitary technology still needs to be made. The transformation of systems engineering information can be reviewed either as a fundamental approach or as a highly sophisticated technique. Industrial competence is developing, and the need for more information at the user level is a real one, well understood by representatives of business and manufacturing firms. Moreover, the supporting technology -- computers, mathematical analysis techniques, etc., -- is already in use; universities teach systems engineering; a considerable bibliography exists; and the field is so large and so promising that chances for clashes about proprietary information can be minimized or eliminated. For this reason the choice of systems engineering as a first subject for synergistic investigation is a particularly good one.

MRI drew up plans for the organizing, coordinating, observing, and reporting of a program based on systems engineering. Experts from NASA, NASA contractors, a university, and industry supplemented MRI's staff in the planning stage. The list of firms to be invited was drawn up on the basis of a careful review of those which might benefit most from such a study session. (These are listed in Progress Report No. 2, pp. 5 - 6.)

B. Schedules

The major tasks involved in the synergism portion of the program were identified, and the sequence in which they were to be undertaken was established (see Progress Report No. 2, Appendix A). In addition, a detailed outline for the study and work sessions was prepared. (See Progress Report No. 2, Appendix B.) Everything was ready for the necessary next steps: initial contact with the firms selected as likely participants in the program; selection of the teaching staff needed for the program; preparation of a detailed information brochure; visits to the firms that would send representatives; completion of all pre-program activities; and finally, the formal sessions themselves.

C. Review of Program Plans

At this stage a review of the whole concept of synergism was undertaken, in order to assess realistically the chances of its working. Alternatives to the original four-week seminar were considered: shorter periods of time, different locales, possibly an audience made up more of representatives of state and local governments rather than of industrial concerns. The identification of the needed consultants, clarification of program details, and the availability of sufficient funds to carry the program through to a successful conclusion, were all matters requiring discussion as well. After consultation with technical personnel of NASA's Technology Utilization

Division, it was agreed that the direction of the program should be redefined. At no time, however, was the validity of the concept of planned synergism denied.

The redirection of program activities was decided to be in the adaptive handling of NASA-generated technology to benefit industry in the midwest. Therefore, on January 23, 1967, Midwest Research Institute (through Mr. John A. Dinwiddie, Administrative Officer) requested by letter to Dr. William Wilner of the Office of Grants and Research Contracts of NASA, a continuation of the subject contract at no additional funding for a period of two months under a modified scope, which involved the dissemination of NASA-generated technology to industry. This request was granted.

D. Dissemination of NASA-Generated Technology

Project activities during the months of February and March 1967 were directed toward the dissemination of NASA-generated technology -- the second objective stated in Section II. These activities covered (1) visits to industrial organizations to obtain a technical profile of the organizations and to acquaint key personnel of the organizations with potential value to the company of NASA-generated information; (2) consulting and technical investigations, whether through visits or that which resulted from telephone requests or written requests for information; and (3) work related to retrospective searches.

A summary of the adaptive handling of technical, NASA-generated information is given below. These data provide a measure of the work performed, and the value received by organizations (from number of inquiries and material sent).

SUMMARY OF ACTIVITIES

Companies served	15
Consulting	9 hours
Technical inquiries:	
By letter	32
By phone	7
Retrospective search made	37